Does Public Governance always Matter? How Experience of Poor Institutional Quality Influences FDI to the South

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Abstract

This paper investigates whether the higher prevalence of South multinational enterprises (MNEs) in risky developing countries may be explained by the experience that they have acquired of poor institutional quality at home. We confirm the intuition provided by our analytical model by empirically showing that the positive impact of good public governance on foreign direct investment (FDI) in a given host country is moderated significantly, and even in some cases eliminated, when MNEs have been faced with poor institutional quality at home.

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1 Introduction

> This observation also suggests that businessmen from one country with poor formal governance will have an advantage in investing or trading with another, as compared to those who come from countries with good formal governance. [...] This may explain some of the recent success of multinationals from these countries when it comes to making foreign direct investments—their specific asset is the entrepreneurial and managerial skill in navigating economic systems with poor governance [Dixit (2009), p.20].

The traditional stream of foreign direct investment (FDI) from the industrialised world (the "North") is gradually being supplemented by outward FDI undertaken by multinationals based in developing countries (the "South"). Although certainly not a new phenomenon, this "South-South" FDI has grown rapidly in recent years. Aykut and Ratha (2004) and UNCTAD (2006) estimate that one third to one half of total FDI inflows reported by developing countries came from other developing countries in the last decade. The fact that this share is frequently much higher in low-income countries and those with relatively risky investment environments (UNCTAD, 2006) suggests that South multinational enterprises (MNEs) may be less deterred by poor public governance conditions than those from the North. This hypothesis may appear surprising given the importance that the FDI literature attaches to good public governance.[1] Nevertheless, a few empirical studies point in this direction. Cuervo-Cazurra (2006) finds that investors from countries with high levels of corruption are undeterred by foreign corruption. Indeed, they may even preferentially locate their activities in countries where corruption is widespread. This result is echoed by those of Cuervo-Cazurra and Genc (2008) who suggest that South MNEs are likely to be more prevalent among the largest foreign firms in those developing countries characterised by poor institutions. The argument underlying both studies is that South MNEs, having acquired the ability to operate in poor institutional environments at home, have a competitive edge over their North counterparts in risky developing countries.[2] This relationship, between experience of poor institutional quality and sensitivity to a host country's public governance, has yet to be rigorously modeled and tested.

[1] Wei (2000), Daude and Stein (2007) and Azémar and Desbordes (2009) find a strong statistical and substantial positive impact of good public governance on FDI.

[2] See also `http://www.princeton.edu/~dixitak/home/GrahamLec4.pdf`, in which Dixit provides similar intuition regarding the superior ability of South MNEs to cope with bad governance and urges more empirical work on the issue.

The purpose of this paper is to make a first step towards filling this gap. We start by setting out a simple analytical model of FDI location in which the location choice of an MNE is influenced by its experience of poor institutional quality at home. A firm that has faced institutional difficulties in its home country may have developed the skills which render similar problems overseas less problematic for it, relative to a firm that has never operated in such a setting. Our simulations illustrate how a South MNE is less deterred by country risk abroad than a North MNE and may even choose a different location in order to potentially earn a higher return in the more risky country. We then turn to our empirical analysis to investigate whether these outcomes emerge in the real economy. We systematically show that the positive association between the quality of a host country's public governance and FDI is strongest when MNEs have little experience of poor institutional quality at home. A decomposition of the effects of better public governance at the extensive and extensive margins suggests that experience of institutional risk particularly matters when there has been no previous FDI between two countries. However, once this 'hurdle' has been crossed, the disadvantage that a MNE may encounter from having little experience of poor institutional quality at home may be partly offset by 'demonstration' effects, arising from an initial investment by that same MNE or by any compatriot MNEs. Overall, it appears that South MNEs are much more likely to invest in risky countries than North MNEs.

The remainder of the paper is organised as follows: section 2 details our theoretical model, which makes explicit how experience of institutional risk can impact on the expected profitability of FDI. In section 3 we describe the data used in our empirical analysis and motivate our econometric approach. Section 4 presents and interprets our detailed results and section 5 concludes.

2 A simple analytical model

We develop a simple model of foreign direct investment (FDI). Consider an MNE with headquarters in source country s. The firm can choose amongst a number of countries as potential hosts for FDI. A production facility in host country h will generate a flow of after-tax profits in each period equal to Π_{sh}. Its decision as to where to locate its production will be strongly

influenced by the profit flows that would arise from FDI in each of the candidate host countries. We therefore define the gap between profits from locating in country 1 as compared to investing in country 2 as its "location advantage":

$$\Gamma_{s12} \equiv \Pi_{s1} - \Pi_{s2}. \tag{1}$$

A broad range of factors may account for one country having a location advantage over another nation as the host for a firm's FDI. Differences in the economic environments of host nations may arise with respect to: the sizes of their domestic markets; their levels of development or geographic distance. We do not model the reason behind these differences but merely accept that firms will find some investment locations more attractive than others.

The investment made by the MNE is expected to be productive and last into the future. Consequently, the firm will look at the present value of the expected stream of current and future profits. Assume, for now, that there is no risk involved in the FDI and that the plant is expected to maintain production (and profitability) indefinitely. The present values of the expressions in (1) are

$$PV\left(\Pi_{sh}\right) = \frac{\Pi_{sh}}{1-\delta},\ h = 1, 2 \tag{2}$$

$$PV\left(\Gamma_{s12}\right) = \frac{\Pi_{s1} - \Pi_{s2}}{1-\delta}, \tag{3}$$

where δ is the discount factor of the firm.[3] When investments have the same expected longevity, accounting for the future leaves the firm's optimal choice of location for its FDI unchanged. We now consider the implications of international differences in the expected lifetimes of foreign production facilities.

2.1 Institutional risk

The life of the MNE's overseas plant may be cut short for many reasons. We focus on problems with respect to the institutions in the host country. We suppose that there is a risk r_h in every period that the production facility in host country h will cease to return a profit to its owners in source country s. This may arise because of some catastrophic breakdown in the host country's

[3] We ignore international differences in discount rates.

economy such that the firm is unable to continue producing. Alternatively, production may carry on but ownership of the firm is expropriated by the host country's government. This risk, if it differs between source countries, will figure in the MNE's calculations as to its preferred production location.

We are particularly interested in determining whether there is an experience effect. That is, we ask whether an MNE's previous experience with poor institutions at home has an influence on its perceptions of the risk inherent in investing in other nations. It may be the case that a firm having faced institutional difficulties at home will have developed skills that render similar problems overseas less problematic, relative to investors from other nations who have never been exposed to such risks. We define ε_{sh} as the subjective probability for firms from source country s that FDI in country h will shut down in the current period. This can be modelled as

$$\varepsilon_{sh} \equiv (1 - e_s^{\alpha})\, r_h, \tag{4}$$

where e_s is the MNE's experience of domestic institutional risk, $e_s < 1$ and $\alpha > 0$. For a risk-free host ($r_h = 0$), the firm's experience of dealing with poor institutions is irrelevant. Should the potential host have an uncertain investment climate ($r_h > 0$), an investing firm with relatively more experience of institutional risk will have greater confidence in FDI in country h than a firm based in a country with a less-checkered past. Thus experience of poor institutions at home mitigates the institutional risk in the host country.[4]

We can rewrite (2), using (4) to incorporate risk, such that the expected present value of the profit stream to a firm from country s arising from FDI in country h is

$$EPV\left(\Pi_{sh}\right) = \frac{\Pi_{sh}}{1 - \delta + \delta\varepsilon_{sh}}. \tag{5}$$

The partial derivatives of (5) are

$$\begin{aligned} \frac{dEPV\left(\Pi_{sh}\right)}{dr_h} &= \frac{-\delta\left(1 - e_s^{\alpha}\right)\Pi_{sh}}{\left[1 - \delta + \delta\varepsilon_{sh}\right]^2} < 0, \\ \frac{dEPV\left(\Pi_{sh}\right)}{de_s} &= \frac{\delta\alpha e_s^{\alpha-1} r_h \Pi_{sh}}{\left[1 - \delta + \delta\varepsilon_{sh}\right]^2} > 0. \end{aligned}$$

[4] In (4), the experience effect is strongest for low values of α (close to zero) and it declines as α increases.

Thus poorer institutions in the potential host country lower the expected stream of profits, making FDI in that location less attractive. The greater the MNE's experience of poor institutions at home, the better it perceives it will be able to cope with risk to its FDI.

Now consider the firm's investment choice between the two potential host countries, 1 and 2. The firm will consider the expected present values of the two locations and will choose country 1 over country 2 if

$$EPV\left(\Gamma_{s12}\right) = \frac{\Pi_{s1}}{1-\delta+\delta\varepsilon_{s1}} - \frac{\Pi_{s2}}{1-\delta+\delta\varepsilon_{s2}} > 0. \tag{6}$$

Rewriting expression (6), separating the risk elements, yields

$$EPV\left(\Gamma_{s12}\right) = PV\left(\Gamma_{s12}\right) + \frac{\delta\left[\left(1-\delta+\delta\varepsilon_{s1}\right)\varepsilon_{s2}\Pi_{s2} - \left(1-\delta+\delta\varepsilon_{s2}\right)\varepsilon_{s1}\Pi_{s1}\right]}{\left(1-\delta\right)\left(1-\delta+\delta\varepsilon_{s1}\right)\left(1-\delta+\delta\varepsilon_{s2}\right)}. \tag{7}$$

This decomposition indicates that any location advantage that country 1 might enjoy is diminished if country 2 is perceived to be a relatively safer investment environment.

We have already established that source-country experience of poor institutional quality can be beneficial for FDI in hosts with poor institutions, but such experience is of no use for FDI in risk-free host countries. Thus there is the potential for firms, that are in all other respects identical save for their institutional experience, to perceive potential FDI returns differently when the hosts differ in their institutional quality. Suppose then that there are two firms from different source countries, A and B. The two potential hosts differ in that country 2 is completely safe but FDI in country 1 carries some risk, that is $r_1 > r_2 = 0$. We further assume that country B has had a more turbulent past than has rock-solid country A, that is $e_B > e_A = 0$. This allows us to rank the perceived levels of risks associated with source and host pairs of nations:

$$r_1 = \varepsilon_{A1} > \varepsilon_{B1} > \varepsilon_{A2} = \varepsilon_{B2} = r_2 = 0.$$

This characterisation of the four countries might be consistent with source country A being from the "North" while source country B is from the "South". With regard to the potential destinations for FDI, host country 2 could be considered more "Northern" than host country 1

due to its more robust institutional framework.[5]

We can then re-write (7) as

$$\begin{aligned} EPV\left(\Gamma_{A12}\right) &= PV\left(\Gamma_{A12}\right) - \frac{\delta r_1 \Pi_{A1}}{(1-\delta)\left(1-\delta+\delta r_1\right)}, \\ EPV\left(\Gamma_{B12}\right) &= PV\left(\Gamma_{B12}\right) - \frac{\delta \varepsilon_{B1} \Pi_{B1}}{(1-\delta)\left(1-\delta+\delta \varepsilon_{B1}\right)}. \end{aligned} \tag{8}$$

Suppose that, in the absence of uncertainty, the two firms would be equally profitable in the same host nation, that is, $\Pi_h = \Pi_{Ah} = \Pi_{Bh}$ for $h = \{1, 2\}$. Assume also that country 1 has a location advantage, such that $PV\left(\Gamma_{A12}\right) = PV\left(\Gamma_{B12}\right) > 0$. The second terms of the expressions in 8 are positive and thus the risk associated with FDI in country 1 will offset its location advantage. Indeed, if FDI in country 1 is particularly risky, the relative stability of country 2's institutions might be sufficiently large that it attracts FDI from both firms. However, country B's firm has been exposed to poor institutions, making it better able to deal with any problems in country 1. Thus it may choose to invest in that location, if the location advantage is large enough to offset the increased risk of closure, while country A's firm opts for the more secure environment of country 2.

Maintaining our assumptions regarding the institutional experiences of the four countries in question, we illustrate the circumstances under which both firms would choose FDI in the lower profit, risk-free host over investing in the riskier, but potentially more profitable, nation.[6] Consider first how varying the experience with risk on the part of the firm changes the relative attractiveness of the two locations.

[Figure 1 about here.]

This is illustrated in Figure 1 which traces $EPV\left(\Gamma_{s12}\right)$ as the experience of the source country changes. When $EPV\left(\Gamma_{s12}\right) > 0$, the higher return in host country 1 more than offsets the greater risk associated with investing in that country. The less experience a firm has of dealing with investment risk, the less able it is to deal with the poor institutional framework in the higher return country and it would choose low-risk country B instead.

[5] This labelling convention that we have adopted, while rather crude, captures an important stylised fact that the more-established industrialised economies of the "North" tend to have better institutions and have had this high institutional quality for some time as compared to newly industrialising nations of the "South".

[6] We use the following parameter values: $\Pi_{s1} = 1.0$, $\Pi_{s2} = 0.8$, $\delta = 0.9$, $r_1 = 0.1$, $r_2 = 0$, $e_A = 0$, $e_B = 0.8$ and $\alpha = 1$.

Effectively, a MNE with greater experience of institutional problems is more willing to invest in a risky climate relative to placing its FDI in a safer host that has a lower return. In Figure 2, we illustrate the cases under which each MNE may choose a different host for its investment and when they co-locate.

[Figure 2 about here.]

The lower line represents $EPV\left(\Gamma_{B12}\right)$ while the upper line shows $EPV\left(\Gamma_{A12}\right)$. When country 1 is as safe as its rival location for FDI, both firms will choose to invest there to take advantage of the higher profitability. The benefits for both firms from investing in country 1 begin to be eroded as that country's riskiness increases, but the impact will be more severe for the firm from country A, which has no experience of dealing with poor institutions. Thus higher risk in country 1 will eventually make country 2 the preferred location for the FDI of both firms. There will, however, be a range of levels of risk in country 1 at which the more-experienced firm from source country B will choose to invest there, while country A's firm, with little experience of poor institutions, will abandon country 1 for the security of investing in the less risky location of country 2.

The *experience* effect considers a MNE's reaction to risk regardless of the host country. Our key hypothesis is that the greater exposure of MNEs to institutional risk in their source country the smaller the weight attributed to a host country's institutional risk in their location decisions. However there may be other factors that influence the decision as to whether the firm may invest in a particular country. Suppose, for instance, that there are two potential hosts, identical in every observable respect (including risk), except that one of the countries is already host to FDI from the same source country as that of the firm. The MNE might then be able to elicit information from its compatriot about local investment conditions, lowering the perceived risk to FDI in that country. Even in the absence of such knowledge transfer, the observation that an enterprise from its own country has set up in a particular host might be sufficient for an MNE to infer that market conditions in that particular location are relatively more favourable to firms with similar backgrounds. Thus, this *demonstration effect* captures the impact on a firm's FDI decision of the presence of an existing investment by source country s in host country h.

A positive demonstration effect would arise if, *ceteris paribus*, a firm was more likely to invest in a nation that was already host to FDI from the same source country.

We now turn to an empirical examination of North-South and South-South FDI in order to determine whether the interaction between the source country's public governance quality with the host country's public governance quality influences investment decisions. In doing so, we will attempt to gauge the presence and importance of both experience and demonstration effects.

3 Econometric model and data

In this section, we first describe our key variables: the dependent variable and our measures of public governance quality. We then turn to the econometric methods, which are fundamentally related the modeling of over-dispersed count data with a preponderance of zero values. Finally we briefly discuss the control variables included in our regressions and provide an example of how the graphical presentation of our key results should be interpreted.

3.1 Dependent variable

We consider FDI in developing countries where the cross-sectional data used are the total numbers of majority-owned foreign affiliates located in these host countries, as reported by the UNCTAD on the *Investment Map* website in November 2007.[7] The original source of the data is *The Global Reference Solution*, from Dun & Bradstreet. In terms of data limitations, useful information, such as the sales or the number of employees are frequently not reported and coverage and accuracy can vary across countries. Despite these caveats, the picture provided by Dun & Bradstreet seems fairly accurate on two grounds. Firstly, the Spearman correlation coefficient between the number of U.S. majority-owned foreign affiliates reported in the database and that reported by the U.S. Bureau of Economic Analysis for 2006 is 0.90. Secondly, the Spearman correlation coefficient between the overall number of majority-owned foreign affiliates reported in the database and the inward FDI stock reported by UNCTAD in 2007 is

[7] `http://www.investmentmap.org/invmap/index.aspx?prg=1`. Information is provided on foreign affiliates located in developing countries and economies in transition that do not belong to the European Union. Hence, only determinants of North-South and South-South FDI are investigated.

0.74. Table 1 indicates the main sources and hosts of South FDI. The top source and host countries tend to be the largest and the richest economies. The widespread presence of tax havens among source countries (e.g. British Virgin Islands or Panama) suggests that, despite Dun & Bradstreet's efforts, the data include "roundtripping" and "trans-shipping" FDI.[8] The "fundamental-based" outward FDI of some countries may be thus over- or under-stated.

[Table 1 about here.]

3.2 Measures of public governance

Data on the quality of countries' public governance come from Kaufmann et al. (2008), who have evaluated six dimensions of public governance for the period 1996-2007, on the basis of polls of experts or surveys of businessmen/citizens. The categories are (i) Voice and Accountability (VA), (ii) Political Stability (PS), (iii) Government Effectiveness (GE), (iv) Regulatory Quality (RQ), (v) Rule of Law (RL) and (vi) Control of Corruption (CC). VA and PS attempt to capture the process by which those in authority are selected and replaced, GE and RQ are related to the ability of the government to formulate and implement sound policies, while RL and CC assess the respect of citizens and the state for the institutions which govern their interactions. These indicators have been used widely in the FDI literature, e.g. Globerman and Shapiro (2003) and Daude and Stein (2007), and are available for most countries in the world. Summary statistics are given in table 2.

The value of each public governance variable, for source and host countries, is the average of the 1996-2004 values. Two considerations motivate this decision. First, data for most other control variables are only available until the year 2004. Second, we wish to account for the different institutional paths of countries. Our dependent variable is assimilable to the cumulative outcome of past investment decisions, partly shaped, according to our analytical model, by the interaction of domestic experience of poor institutional quality and the quality of a given host country's public governance at the time of the decision. Even though institutional risk in the

[8]Roundtripping refers to the situation where different treatments of foreign and domestic investors encourage the latter to channel their funds into special purpose entities (SPEs) abroad in order to subsequently repatriate them in the form of incentive-eligible FDI. With trans-shipping, funds channeled into SPEs in offshore financial centres are redirected to other countries, leading to strong divergences between the source country of the FDI and the ultimate beneficiary owner.

source country may be currently low, MNEs, and their managers, may have been exposed to higher levels of risk in the past, allowing them to gain practical knowledge on how to operate, today, in difficult business conditions. From the host country perspective, the current quality of a host country's public governance may not perfectly reflect past institutional quality.[9] Assuming that a given host country only recently achieved good public governance, it is likely that it will not be host, *ceteris paribus*, to as many foreign affiliates as a country that developed good institutions a long time ago. Averages allow us to accommodate, admittedly imperfectly, these institutional dynamics, which may influence, or have influenced, FDI decisions.

[Table 2 about here.]

3.3 Econometric model and control variables

3.3.1 Count data modeling

Given that our dependent variable is a count variable, which can only take nonnegative integer values, we adopt a count data model.[10] We need to tackle three issues: truncation, unobserved heterogeneity and data-generating process (*dgp*) of zeros.

The database maintained by Dun & Bradstreet records the ownership information of firms. Hence, the UNCTAD *Investment Map* database on foreign affiliates only include positive counts of foreign affiliates by construction. Given that our data are truncated from below at zero, the conditional probability mass function (*pmf*) $f(y|x)$ needs to be normalised in order that the truncated *pmf*s sum to one: $f(y|x, y > 0) = \frac{f(y|x)}{1-f(0|x)}$, with y being the number of foreign affiliates from source country s located in host country h, and x a number of variables that are believed to influence the location choices of MNEs.

A Poisson distribution is usually the starting point of a count data analysis. Its *pmf* is $f(y|\mu) = \frac{exp(-\mu)\mu^y}{y!}$, with $\mu > 0$. μ is the parameter defining both the mean and the variance of

[9] Values of the correlation coefficients between the 1996 and 2004 values of the six public governance dimensions range between 0.70 (CC) and 0.88 (VA).

[10] For a comprehensive exposition of count data models, see Long (1997) Cameron and Trivedi (1998) and Winkelmann (2008). Our discussion of count data econometrics relies on these sources.

the Poisson distribution and can be interpreted as the expected number of times that an event has occurred, with $\mu = E(y|x)$. Given that the expected number of counts must be positive ($\mu > 0$), an exponential conditional mean function is usually adopted: $\mu = exp(x'\beta)$, where $x'\beta$ is the linear predictor. In our empirical analysis, the linear predictor will be:

$$\begin{aligned} x'\beta &= \beta_0 + \beta_1 \text{Source PG quality}_s + \beta_2 \text{Host PG quality}_h + \\ &\quad \beta_3(\text{Source PG quality}_s \times \text{Host PG quality}_h) + \\ &\quad \sum_{i=4}^{18} \beta_i \text{Control variables} \end{aligned}$$

where *PG* stands for Public Governance and the control variables can be related to the destination country, the host country or both. A model in which experience of poor domestic institutional quality does not matter when MNEs make their location decisions is equivalent to constraining β_3 to be equal to zero. On the other hand, if experience matters, the effect of host country's public governance on the location decision is no more 'unconditional' and fully accounted for by β_2 as the effect becomes 'conditional' on experience and corresponds to $\beta_2 + \beta_3 \times$ *Source PG quality*$_s$. Given our previous discussion, and the assumption that better public governance in a source country implies less experience of poor institutional quality, we expect β_3 to be positive: the smaller the exposure of MNEs to institutional risk in their source country the larger the weight attributed to a host country's institutional risk in their location choices.

It is unlikely that the regressors x will fully explain the individual heterogeneity in the conditional mean of y. By analogy with the linear regression model, the effects of omitted factors independent of the observed variables can be captured via the inclusion of of a random component ϵ in the conditional mean function: $\tilde{\mu} = exp(x'\beta + \epsilon) = exp(x'\beta)exp(\epsilon) = exp(x'\beta)u$. The distribution of observations given regressors x and unknown u is still Poisson, implying that $E(y|x,u) = Var(y|x,u)$. It is straightforward to see that taking into account unobserved heterogeneity does not change the conditional mean if $E(u) = 1$ as $E(\tilde{\mu}) = E(\mu u) = \mu E(u) = \mu = E(y|x)$. This assumption can be conveniently met if it is assumed that u is gamma distributed with parameter ν, which implies that $E(u) = 1$ and $Var(u) = \frac{1}{\nu} = \alpha$. Unobserved heterogeneity implies overdispersion ($Var(y|x) > E(y|x)$) since, using the variance decom-

position theorem, $Var(y|x) = E_u[Var(y|x,u)] + Var_u[(E(y|x,u)] = \mu + \alpha^2\mu > \mu$. The marginal distribution of y is a Poisson-Gamma mixture, whose integration over u leads to the negative binomial distribution for y. Alternatively, the negative binomial distribution may be understood as the outcome of contagion (dependence) between the occurrence of successive events, implying, for instance, that a first FDI increases the probability of another FDI. With cross-sectional data, it is not possible to distinguish between an observed distribution of counts that is the result of unobserved heterogeneity or contagion, although both possibilities seem feasible in our empirical application.

The truncated conditional mean of a truncated negative binomial model, $E(y|x,\alpha,y>0)$, is the non-truncated conditional mean, $E(y|x,\alpha)$, adjusted by the inverse of the probability of a positive count: $E(y|x,\alpha,y>0) = \frac{E(y|x,\alpha)}{1-f(0|x)}$, where $f(0|x)$ is the probability of zero counts assuming a negative binomial probability function. The non-truncated conditional mean can be recovered from the truncated conditional mean by noting that $E(y|x,\alpha) = Pr(y > 0|x)E(y|x,\alpha,y>0) = (1-f(0|x))\frac{E(y|x,\alpha)}{1-f(0|x)}$. Such a decomposition, applicable to any count data model, makes it clear that as long as zeros and positive counts are assumed to be generated by the same *dgp*, the estimated parameters of the truncated negative binomial model are informative regarding the effect of a change in a given regressor on the expected number of counts without truncation.

However, assuming that zeros and positives come from the same *dgp* may be too restrictive. In that case a hurdle model, in which the hurdle is set at zero, can be used, i.e.

$$f(y|z,x,\alpha) = \begin{cases} g_1(0|z) & \text{if } y = 0 \\ \frac{1-g_1(0|z)}{1-f_2(0|x,\alpha)} f_2(y|x,\alpha) = \Theta f_2(y|x,\alpha) & \text{if } y \geq 1 \end{cases}$$

where $f_2(.|x)$ is the negative binomial conditional *pmf*, referred as the parent process, and $g_1(0|z)$ is the conditional probability of a zero outcome, defined by the logistic function in our empirical application such as $Pr(y=0|z) = \frac{1}{1+exp(z'\gamma)}$. The negative binomial hurdle model (NBHM) reverts to a standard negative binomial regression model (NBRM) when $g_1(.)$ and $f_2(.)$ are the same, i.e. $\Theta = 1$. The conditional mean can now be written: $E(y|x,\alpha) = Pr(y_1 > 0|z)E(y_2|x,\alpha,y_2>0)$, where the subscripts $_1$ and $_2$ are used to emphasise that a

hurdle model combines a binary model with a zero-truncated model. These two models can be independently estimated and the sets of regressors z and x may be overlapping.

The flexibility of the hurdle model is appealing as it may provide a more appropriate specification of the conditional mean function. For a given regressor $x_1 = z_1$, the overall mean effect of a change in its value is, in semi-elasticity form:

$$\frac{\partial E(y|x,\alpha)/E(y|x,\alpha)}{\partial x_1} = \frac{\partial Pr(y_1 > 0|z)/Pr(y_1 > 0|z)}{\partial x_1} + \frac{\partial E(y_2|x,\alpha,y_2 > 0)/E(y_2|x,\alpha,y_2 > 0)}{\partial x_1}$$

It can be readily seen that the overall mean effect of a change in a given regressor can be decomposed into an effect at the extensive margin, i.e. its impact on the probability that a positive count occurs, and an effect at the intensive margin, i.e. its impact on the expected number of counts given that at least one event, in our case FDI, occurs. Given that both effects are no more constrained to be function of the same parameter β, since they are determined by two different models (logit and zero-truncated negative binomial model), a regressor may have an effect at the extensive margin, by influencing the probability of crossing the hurdle, but little effect at the intensive margin, by not affecting the truncated conditional expectation. For instance, from an economic perspective, the hurdle model can be interpreted as reflecting a two-stage decision-making process by MNEs, each (functionally independent) part being a model of one decision. The first part of the hurdle model determines the probability that MNEs from source country *s* will decide whether or not to invest at all in host country *h*. The hurdle is crossed if at least one FDI takes place within a country-pair, and the second part of the hurdle model determines the number of affiliates that MNEs from *s* choose to establish subsequently in host country *h*. It could be imagined that experience of poor domestic institutional quality lowers the hurdle for investing in a risky developing country for some MNEs but, once an initial investment has been made, the knowledge derived from actually operating a foreign affiliate in the risky country, or observing a compatriot doing that very activity, renders past experience much less relevant when taking the decision of establishing additional foreign affiliates. Given that 'demonstration' effect, experience of institutional risk would only have an effect at the

extensive margin.

3.3.2 Specification tests and econometric model adopted

The Poisson distribution is a special case of the negative binomial distribution when $\alpha = 0$. It is for instance easily seen that if $\alpha = 0$, $Var(y|x) = \mu + 0^2 = \mu$, leading to the rejection of overdispersion, and by extension, unobserved heterogeneity. Since the zero-truncated Poisson model (ZTPM) is nested in the zero-truncated negative binomial model (ZTNBM), through the parametric restriction that $\alpha = 0$, Wald or Likelihood ratio tests, modified to take into account that $\alpha \geq 0$, can be be used to test the null hypothesis that $\alpha = 0$. In our empirical application, both tests always reject the absence of overdispersion.

[Table 3 about here.]

Even though our data are truncated at zero we can populate our dataset with zero values, which correspond to country-pairs for which no FDI has been observed, as we are not restricted by a lack of information on explanatory variables when $y = 0$. In that case, even though the estimators of the ZTNBM are consistent, is is more efficient to use a standard NBRM, which uses more information about y. Hence the choice of our final model boils down to making a selection between the single-index NBRM in which zeros and positives are assumed to have the same *dgp* or the multi-index NBHM in which the opposite is assumed. A modified likelihood ratio (LR) test, the Vuong model selection test (Vuong, 1989), needs to be used to determine which model is closer to the true model, because the NBRM and the NBHM are not nested. This test is fundamentally based on testing the null hypothesis that the log-likelihood of both models, evaluated at their respective maximum likelihood estimates, has the same expected value, i.e. both models are equivalent. Large positive values of the Vuong statistic ($V > 1.96$) favor the null (first) model, whereas large negative values ($V < -1.96$) favour the alternative (second) model. We compute the Vuong statistic for NBHM vs. NBRM and, as a robustness check, for NBHM vs. PHM (Poisson Hurdle model). We also test the NBHM against another popular model that captures flexibly the generation of zero counts, the ZINB (Zero-Inflated Negative Binomial) model. The main difference between the NBHM and the ZINB is that the latter allows zeros to be generated by both binary and count processes. Conceptually, we did

not adopt the ZINB model as it seems unlikely that our zero values correspond to a situation in which investment could have taken place but did not actually occur, given the fact that our dependent variable represents the cumulative outcome of all past investment decisions until the end of 2007. Table 3 shows that, in our empirical application, the LR test of Vuong always favours the NBHM.

3.3.3 Control variables

We assume that the variables (z) which influence the probability that MNEs from a given source country s will invest in a given host country h are the same as those (x) that determine the expected number of foreign affiliates, conditional on the fact that MNEs from s have at least invested once in h. In addition to the public governance variables for the source and host countries and their interaction, the vector of explanatory variables includes fourteen control variables, listed in table 4, most of them are commonly found in the FDI literature of gravity-type models.[11] A tax haven source country dummy is also included in order to control for the over-reporting of FDI originating from offshore financial centres/tax havens. Finally, to reduce the risk that the interaction of the public governance variable picks up any unobserved effect related to the proximity of economic development of a country-pair, e.g. similarity of customers' tastes, we introduce the similarity index proposed by Buch et al. (2005). It is calculated as $S_{sh} = 1 - \frac{abs(GDPPC_h - GDPPC_s)}{max(GDPPC_h, GDPPC_s)}$ and ranges between 0 (very dissimilar) and 1 (very similar). Values of control variables have been averaged over the 2000-2004 period, to reduce the influence of short-run fluctuations or measurement errors.

[Table 4 about here.]

3.3.4 Graphical interpretation of results

In our analytical model, we argue that an MNE's experience of poor institutions at home may influence its willingness to invest in risky locations. In particular, we would expect investors who have experienced poor domestic institutional quality to be less deterred by country risk

[11] As noted by Blonigen et al. (2007) "*the gravity model is arguably the most widely used empirical specification for FDI*" (p. 1309). Bergstrand and Egger (2007) and Head and Ries (2008) have recently provided theoretical rationales for estimating FDI gravity equations.

abroad. Hence, the effects of an improvement in the quality of a host country's public governance, may not be unconditional, in the sense that they depend on the origin of the FDI.

We adopt a graphical approach to present our results, in order to provide a meaningful interpretation of the unconditional and conditional impacts of public governance at different stages of the decision-making process of MNEs. Figure 3 shows how we summarise the unconditional and conditional effects of each public governance variable, taking as an example the overall effect of an improvement in Government Effectiveness (GE) on the expected number of foreign affiliates.

The top graph provides the estimated unconditional factor increase in the expected number of foreign affiliates given a unit discrete change in GE,[12] depicted by a medium-width solid line, and its 95% confidence interval, depicted by dashed lines. Source institutional quality is on the horizontal axis, with a greater value implying less experience of poor institutional quality. All lines are horizontal since the effect of an improvement in the quality of a host country's public governance on MNEs'location choices is assumed not to depend on their experience of poor domestic institutional quality. A horizontal dotted line is also drawn, which intersects the vertical axis at a factor increase of one. Statistical significance is achieved when all lines are above the dotted line, i.e. when the confidence interval does not include an estimated factor increase of one, corresponding to an impact of public governance on FDI not significantly different from zero.

The middle graph provides the estimated conditional effect of a unit increase in GE, depicted by a thick-width solid curve, and its confidence interval, depicted by dashed curves. In order to obtain this conditional effect, the host country's GE measure is interacted with the source country's GE measure. The curves, for this specific public governance dimension, are upward-sloping, in line with our hypothesis that the effects of public governance depend on MNEs' experience of poor domestic institutional quality. Two vertical lines are also drawn. The first of these indicates the value of the measure of institutional quality for a median "FDI-active" source South country while the second indicates the value of the measure of institutional

[12] More specifically, we examine the impact of a one unit change in GE, centered around its median value in the truncated sample (see table 2).

quality for a median "FDI-active" source North country.[13]

The bottom graph, that we will report in the next section, simply combines the two preceding graphs and allows a direct comparison between the unconditional and conditional effects of public governance.

[Figure 3 about here.]

Given the relative complexity of our econometric model, and our emphasis on discrete changes, all estimated effects, and their confidence intervals, are calculated following the simulation-based approach of King et al. (2000).[14] In a first stage, 10000 simulations of the main and auxiliary parameters are drawn from a multivariate normal distribution with means equal to the vector of parameter estimates and variances equal to the variance-covariance matrix of parameter estimates. For each draw, the effect of a change in the value of the public governance variable on the value of the predicted probability/count is then calculated and expressed as a factor change, holding other variables at their truncated sample medians. The reported impact in each figure is the average of the 10000 simulated effects while their 2.5 and 97.5 percentile values, respectively, provide the lower and upper bounds of a 95% confidence interval.

4 Results

We relegate our (initial) regression coefficient estimates to the Appendix since we only focus on the effects of public governance and have adopted a graphical approach. We simply note that it can be seen in table 6 that all control variables have the expected sign and are generally significant across regressions. In addition, table 7 shows that better governance in the source country tends to promote FDI, even though the impact depends on the dimension and margin considered. This positive effect of better institutional quality on outward FDI corroborates the results of Globerman and Shapiro (2002).

[13] By "FDI-active", we mean that firms from this source country have at least invested once abroad. Note that these lines do not indicate estimates but are simply summary statistics for the sample data.

[14] This procedure is essentially an application of the parametric bootstrap.

4.1 Discussion

We start the discussion of our results by looking at the overall effects of better public governance on the expected number of foreign affiliates (figure 4 and table 5). Without taking into account the mitigating influence of experience of institutional risk, we find that only the RL dimension does not exert a statistically significant impact on the expected number of foreign affiliates located in a given host country. Among the other governance variables, improvements in RQ, following by improvements in VA, would have the biggest impacts on FDI attractiveness. For instance, if Ghana's average VA had been rated as high as that of South Africa or if India's average RQ had been rated as high as that of South Korea (about the equivalent of a one point increase), the number of foreign affiliates located in these countries would have been expected to increase by a factor of 2.7 and 2.9 respectively. These results are in line with the findings of previous empirical literature.

The picture becomes much more nuanced when we take into account that not all investors are equal in the face of institutional risk. We find that the statistical and substantive significance of an improvement in the quality of a host country's public governance crucially depends, in most cases, on whether MNEs have had experience of poor institutional quality at home. The intersection of the solid curves with the two vertical lines provides useful points of reference. For MNEs located in a median FDI-active developed country, improvements in every public governance condition besides RL would still, in statistical and substantive terms, significantly raise the expected number of foreign affiliates in a given country. The conditional effects are 10-20% larger than the unconditional effects. On the other hand, for MNEs located in a median FDI-active developing country, several public governance dimensions are no more statistically significant, e.g. GE, while the economic impacts of the others are significantly reduced. For instance, a one point increase in RQ would increase the expected number of foreign affiliates belonging to MNEs located in a median FDI-active developing country by a statistically significant factor of only 2.4, four-fifths of the unconditional effect. These findings strongly support our hypothesis that the sensitivity of firms to foreign risk is heterogenous, as it depends on their experience of risk in their source country. However a noticeable exception is when we look at the effects of PS. The conditional effect is almost undistinguishable from the unconditional

effect.

[Figure 4 about here.]

[Figure 5 about here.]

[Figure 6 about here.]

The unconditional and conditional overall mean effects of better public governance on the expected number of foreign affiliates does not provide a full account of how an improvement in host country's public governance influences MNEs' decision-making process, as it is a combination of effects at the extensive and intensive margins. It is, for instance, conceivable that the overall positive effect previously put forward is mostly due to a rise in the probability that MNES invests in a given host country, without any change in the expected number of foreign affiliates once a FDI has initially taken place. Such a situation could arise if the initial investment by a MNE from a given source country generates 'demonstration effects' for itself and other MNEs, compensating for any lack of prior experience of poor institutional quality in their source country. Hence, we now turn to the examination of the impacts of the various public governance dimensions at the extensive and intensive margins.

At the extensive margin, only improvements in VA, GE and RQ would result in a statistically significant positive unconditional impact on the probability that a given host country is chosen as a FDI location. Once again, a one unit increase in RQ would generate the largest factor increase. The conditional effects again support our hypothesis since, for every public governance dimension, including PS, the impact of better public governance increases as experience of poor institutional quality at home decreases. From a statistical significance perspective, only improvements in VA and RQ would matter for MNEs located in a median FDI-active developing country.

At the intensive margin, improvements in VA, PS, GE, RQ and CC would result in a statistically significant positive unconditional impact on the expected number of foreign affiliates once MNEs from a given source country have at least invested once in a given host country. Conditionally, only improvements in VA and PS would statistically matter for MNEs located in

a median FDI-active developing country. The curves depicting the conditional effects weakly suggest that 'demonstration effects' may indeed exist as they tend to be flatter than those at the extensive margin. For instance, the average ratio between the estimated conditional effects for a median FDI-active developed country and for its developing counterpart is about 1.17 at the extensive margin, but 1.07 at the intensive margin. Finally, we find the reason for the absence of support to our hypothesis when we look at the overall effect of better PS: the conditional effect at the intensive margin is negatively related to experience of poor institutional quality.

Overall, these empirical findings confirm our broad hypothesis that South MNEs are less deterred by risk than North MNEs, thanks to greater experience of poor institutional quality at home. They also point out that the latter may be particularly crucial when a South country is *terra incognita* for MNEs located in a given source country, whereas it may matter less once a first foreign affiliate has been established.

In the next section, we submit our results to a battery of robustness checks.

4.2 Robustness checks

We consider, in turn, the issues of aggregation, data reliability and governance proxies.

In our database, the number of foreign affiliates are available at the sector level. However, we decided to use only the aggregate number of foreign affiliates, given that the rest of our data are only available at the country-level. We thus implicitly assumed that, whichever the sector, FDI is driven by the same determinants. It could then be argued that our results are an artifact of an aggregation bias, based on the presupposition that MNEs from developing countries tend to primarily invest in the primary sector whereas MNEs from developed countries mainly invest in the secondary and tertiary sectors.[15] MNEs motivated by the extraction of natural resources have very little choice with regard to the location of their foreign affiliates, given the uneven world distribution of subsoil assets.[16] Greater location choice allows MNEs operating

[15]The primary sector includes such activities as mining and extraction of crude petroleum and natural gas. The secondary sector includes such activities as manufacture of chemical products and manufacture of electric and electronic equipment. The tertiary sector includes such activities as wholesale and retail trade and financial intermediation.

[16]MNEs they may still be deterred by the combination of very large sunk costs and the frequent occurrences of "obsolescing bargains" (Vernon, 1971) between the MNE and the host country, resulting in creeping expropriation.

in other sectors to choose relatively safe countries. In that case, our negative relationship between experience of poor institutional quality and the effect of an improvement of a given host country's public governance may only reflect the heterogenous sectoral motives of developed and developing countries MNEs. This line of reasoning is nevertheless not supported by empirical evidence. In our sample, foreign affiliates belonging to developed countries MNES are relatively more numerous than their developing counterparts (10% vs. 7%) in the primary sector. In addition, it can be seen in table 5 that excluding foreign affiliates located in the primary sector from our sample leaves our initial conclusions unchanged.

It is also likely that the number of foreign affiliates is underreported in some countries. In order to check whether our results are not affected by this measurement error in the dependent variable, we assume that the activities of a country's MNEs are better recorded when Dun&Bradstreet, or one of its worldwide network members, explicitly covers a given country.[17] Table 5 shows that removing uncovered countries from our sample does not substantively change our main results.

Finally, throughout the paper, we have used the World Bank governance variables; unfortunately they are only available for a recent time period. An alternative measure of institutional quality, widely used in the FDI literature, is the *International Country Risk Guide* (ICRG) Political Risk rating, which aggregates numerical evaluations of twelve dimensions of political risk.[18] The indicator ranges from 0 (high political risk) to 100 (no political risk). Its spatial coverage is less than that of our public governance proxies but it is available over the 1984-2008 period. Hence, using its 1984-2004 average may allow us to better capture the institutional trajectories of source and host countries, and their interactions.[19] Table 5 indicates that this new public governance proxy makes little difference to our initial results.

[Table 5 about here.]

[17]The list of the countries covered are available at `http://dnb.com.au/Header/About_Us/Company_profile/DandB_Worldwide_Network/DandB_Worldwide_Network_members/index.aspx`. MNEs from these countries are responsible for about 40% and 80% of total and strictly positive observations respectively.

[18]These dimensions are (1) government stability, (2) socioeconomic conditions, (3) investment profile, (4) internal conflict, (5) external conflict, (6) corruption, (7) military in politics, (8) religion in politics, (9) law and order, (10) ethnic tensions, (11) democratic accountability, (12) bureaucracy quality. See `http://www.prsgroup.com/`

[19]Our results are robust to the use of other period averages.

5 Conclusion

This paper addresses a gap in the existing literature by investigating, theoretically and empirically, whether the higher prevalence of South MNEs in risky developing countries may be explained by the experience that they have acquired of poor institutional quality at home. We confirm the intuition provided by our analytical model by showing empirically that the positive impact of good public governance on FDI in a given host country is moderated significantly, and for some dimensions eliminated, when MNEs have had experience of poor institutional quality at home. In contrast, MNEs with little experience are deterred much more by bad public governance conditions than could have been inferred from an unconditional estimation of the effects of public governance on FDI.

The growth of South FDI and its relative insensitivity to risk may be good news for those countries with underdeveloped institutions, as these nations are often amongst the poorest and the most in need of additional capital. Furthermore, it is possible that South-South FDI may be of more benefit to developing countries than North-South FDI in terms of technology transfer, given lower technology gaps. However, the fact that South MNEs are less worried by the quality of the host country's business environment or the respect of political and civil rights than their Northern counterparts may impede the positive influence of globalisation towards better governance, which, overall, remains a strong determinant of FDI.

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Appendix

[Table 6 about here.]

[Table 7 about here.]

List of Tables

Table 1: Sources and destinations of South FDI

Number of foreign affiliates

Main source countries				Main host countries, by source			
South		North		South		North	
Mauritius	23	Norway	282	Chile	27	Viet Nam	260
Poland	26	Belgium	311	Barbados^{*th}	30	Croatia	300
Venezuela	27	Cayman Islands^{*th}	311	Nicaragua	35	Ecuador	314
Costa Rica	35	Portugal	406	Thailand	36	Uruguay	315
Guatemala	37	Australia	412	El Salvador	37	Egypt	410
Turkey	39	Finland	531	Philippines	38	Peru	420
China	39	Luxembourgth	531	Guatemala	41	Ukraine	449
Saudi Arabia	42	Austria	532	India	45	Panamath	459
Indonesia	43	British Virgin Islands^{*th}	706	Bolivia	49	Morocco	460
Thailand	46	Denmark	746	Ecuador	50	South Africa	640
Russian Federation	52	Bermuda^{*th}	792	Costa Rica	50	Philippines	654
Trinidad and Tobago	54	Taiwan Province of China	851	Malaysia	53	Colombia	838
Czech Republic	73	Canada	860	Turkey	62	Venezuela	863
Colombia	84	Sweden	1303	Ukraine	73	Indonesia	914
South Africa	89	Italy	1522	Uruguay	76	Chile	993
Barbados^{*th}	114	Singaporeth	1556	Panamath	80	Thailand	1068
India	154	Spain	2416	Colombia	87	Turkey	1355
Uruguay	162	Switzerlandth	2762	Peru	88	Republic of Korea	1793
Malaysia	207	Netherlands	3839	Venezuela	100	Russian Federation	2000
Argentina	212	United Kingdom	4616	Indonesia	115	Malaysia	2362
Chile	265	Hong Kong, Chinath	4652	Russian Federation	115	India	2372
Panamath	292	France	6077	Mexico	144	Argentina	3215
Brazil	305	Germany	7535	Argentina	456	Mexico	10018
Mexico	317	Japan	10586	Brazil	667	Brazil	18023
Republic of Korea	787	United States	20267	China	710	China	19128
Total	**3887**		**75487**				

Notes: South: developing country according to World Bank classification (low and middle income countries). North: developed country according to World Bank classification (high income countries).*: country not included in the estimation sample due to data limitations.th: tax haven countries. Data sources: UNCTAD and Dun & Bradstreet.

Table 2: Public governance: summary statistics

Variable	Mean	Median*	Std. dev.	Min	Max
			Host		
Voice and Accountability (VA)	-0.41	-0.32	0.80	-2.10	1.30
Political Stability (PS)	-0.36	-0.30	0.85	-2.41	1.35
Government Effectiveness (GE)	-0.44	-0.29	0.61	-1.96	1.31
Regulatory Quality (RQ)	-0.42	-0.17	0.73	-2.41	1.39
Rule of Law (RL)	-0.48	-0.40	-0.54	-2.13	1.22
Control of Corruption (CC)	-0.45	-0.39	0.62	-1.70	1.36
			Source		
Voice and Accountability (VA)	-0.06	1.24	0.97	-2.10	1.63
Political Stability (PS)	-0.04	0.81	0.94	-2.41	1.49
Government Effectiveness (GE)	0.00	1.62	0.98	-1.96	2.26
Regulatory Quality (RQ)	-0.02	1.29	0.96	-2.41	1.87
Rule of Law (RL)	-0.05	1.39	0.97	-2.13	1.96
Control of Corruption (CC)	-0.01	1.41	0.98	-1.70	2.35

Note: Std. Dev.: Standard deviation. Values averaged over the 1996-2004 period. Median*: Median values correspond to the truncated sample medians. Data source: Kaufmann et al. (2008).

Table 3: Choosing between models

Governance indicator	VA	PS	GE	RQ	RL	CC
NBHM vs. NBRM	10.85	11.18	6.68	6.38	5.48	7.07
NBHM vs. HPM	13.80	13.37	14.31	14.39	13.32	14.47
NBHM vs. ZINB	4.39	2.30	2.48	3.36	2.52	2.28

Notes: A positive value of the Vuong statistic greater than two indicates that the first model should be preferred to the second model. VA: Voice and Accountability. PS: Political Stability. GE: Government Effectiveness. RQ: Regulatory Quality. RL: Rule of Law. CC: Control of Corruption. All models include the full set of control variables.

Table 4: Dependent and control variables

Variable	Expected sign	Definition	Source	Mean	Std. Dev.	Min.	Max.
Foreign affiliates	Dependent	Number of foreign affiliates established in host country *h* by MNEs located in source country *s*	Dun & Bradstreet/UNCTAD	3.17	77	0.00	5825
Host GDP	+	Ln gross domestic product (GDP) of the host country, in 2000 constant PPP $US	Heston et al. (2002)	16.81	2.07	11.83	22.50
Source GDP	+	Ln gross domestic product (GDP) of the source country, in 2000 constant PPP $US		17.24	2.16	11.83	23.03
Host GDPPC	+	Ln gross domestic product per capita of the host country, in 2000 constant PPP $US		8.11	0.95	6.11	10.27
Source GDPPC	+	Ln gross domestic product per capita of the source country, in 2000 constant PPP $US		8.58	1.18	6.11	10.80
Similarity index	+	$S_{sh} = 1 - \frac{abs(GDPPC_h - GDPPC_s)}{max(GDPPC_h,, GDPPC_s)}$		0.38	0.27	0.01	1.00
Distance	-	Ln population-weighted bilateral distance between the source country and the host country, kms	CEPII Mayer and Zignago (2006)	8.78	0.73	4.55	9.89
Contiguity	+	Dummy set equal to 1 if the host country and the source country shares a common border		0.02	0.13	0.00	1.00
Common language	+	Dummy set equal to 1 if the host country and the source country shares a common language		0.17	0.37	0.00	1.00
Colony	+	Dummy set equal to 1 if the host country and the source country have ever had a colonial link		0.01	0.08	0.00	1.00
Landlock	-	Dummy set equal to 1 if the host country is landlocked	Rose (2004)	0.23	0.42	0.00	1.00
RTA	+	Dummy set equal to 1 if the host country and source country are involved in a regional trade agreement (RTA)		0.01	0.09	0.00	1.00
GSP	+	Dummy set equal to 1 if the host country and source country are involved in a generalised system of preferences program (GSP)		0.06	0.24	0.00	1.00
CU	+	Dummy set equal to 1 if the host country and source country are involved in a strict currency union (CU)		0.01	0.07	0.00	1.00
Tax haven	+	Dummy set equal to 1 if the source country is identified by the U.S. Department of Treasury as a tax haven	Hines and Rice (1994)	0.10	0.30	0.00	1.00

Notes: Income data have been averaged over the 2000-2004 period.

Table 5: Robustness checks

Changes in sample		VA			PS			GE			RQ		
		U	C-Dvping	C-Dvped	U	C-Dvping	C-Dvped	U	C-Dvping	C-Dvped	U	C-Dvping	C-Dvped
No change	Extensive margin	1.65*	1.62*	1.78*	1.20	1.18	1.22	1.47*	1.24	1.64*	1.80*	1.67*	1.93*
	Intensive margin	1.60*	1.48*	1.62*	1.38*	1.45*	1.35*	1.46*	1.22	1.50*	1.57*	1.42	1.57*
	Overall	2.67*	2.42*	2.90*	1.66*	1.72*	1.66*	2.17*	1.53	2.47*	2.85*	2.39*	3.06*
Overall dvping / Overall dvped			**0.83**			**1.04**			**0.62**			**0.78**	
Without primary sector	Extensive margin	1.66*	1.64*	1.79*	1.21	1.19	1.22	1.48*	1.24	1.65*	1.81*	1.71*	1.93*
	Intensive margin	1.60*	1.49*	1.61*	1.39*	1.45*	1.37*	1.46*	1.24	1.50*	1.57*	1.43*	1.58*
	Overall	2.66*	2.47*	2.90*	1.69*	1.74*	1.69*	2.19*	1.56	2.49*	2.87*	2.48*	3.08*
Overall dvping / Overall dvped			**0.85**			**1.03**			**0.63**			**0.81**	
Only from source countries where D&B is present	Extensive margin	1.37*	1.48*	1.43*	1.08	1.04	1.11	1.27*	1.33	1.33*	1.39*	1.61*	1.46*
	Intensive margin	1.43*	1.15	1.51*	1.36*	1.39*	1.33	1.33	0.99	1.41*	1.45*	1.33	1.45*
	Overall	1.97*	1.71*	2.16*	1.48*	1.44*	1.70*	2.68*	1.33	1.90*	2.03*	2.16*	2.13*
Overall dvping / Overall dvped			**0.79**			**0.85**			**0.70**			**1.01**	

Changes in sample		RL			CC			ICRG-PR		
		U	C-Dvping	C-Dvped	U	C-Dvping	C-Dvped	U	C-Dvping	C-Dvped
No change	Extensive margin	1.17	1.02	1.25	1.17	1.04	1.22			
	Intensive margin	1.12	1.10	1.12	1.44*	1.38	1.43*			
	Overall	1.31	1.13	1.47	1.69*	1.44	1.76*			
Overall dvping / Overall dvped			**0.77**			**0.82**				
Without primary sector	Extensive margin	1.17	1.03	1.26	1.17	1.05	1.22			
	Intensive margin	1.12	1.10	1.12	1.45*	1.40	1.45*			
	Overall	1.32	1.14	1.41	1.71*	1.47	1.78*			
Overall dvping / Overall dvped			**0.81**			**0.83**				
Only from source countries where D&B is present	Extensive margin	1.13*	1.11	1.17*	1.12	1.13	1.15*			
	Intensive margin	0.98	0.87	1.24	1.24	1.07	1.29			
	Overall	1.11	0.97	1.20	1.40	1.22	1.49*			
Overall dvping / Overall dvped			**0.81**			**0.82**				
Use of ICRG Political risk variable (1984-2004)	Extensive margin							1.25*	1.20	1.32*
	Intensive margin							1.35*	1.12	1.44*
	Overall							1.70*	1.35	1.92*
Overall dvping / Overall dvped									**0.70**	

Notes: * denotes statistical significance (at least) at the 5% level. Numbers correspond to the estimated factor increase following a one unit increase (ten points increase in the ICRG PR case) in a given public governance variable. U: Estimated unconditional effect. C-Dvping: Conditional effect, at the median FDI-active developing country value. C-Dvped: Conditional effect, at the median FDI-active developed country value. VA: Voice and Accountability. PS: Political Stability. GE: Government Effectiveness. RQ: Regulatory Quality. RL: Rule of Law. CC: Control of Corruption.

Table 6: Determinants of South-South FDI: control variables

	VA		**PS**		**GE**		**RQ**		**RL**		**CC**	
Determinant/Margin	*Extensive* (1)	*Intensive* (1)'	*Extensive* (2)	*Intensive* (2)'	*Extensive* (3)	*Intensive* (3)'	*Extensive* (4)	*Intensive* (4)'	*Extensive* (5)	*Intensive* (5)'	*Extensive* (6)	*Intensive* (6)'
Source ln(GDP)	0.75***	0.51***	0.71***	0.46***	0.65***	0.46***	0.72***	0.49***	0.68***	0.45***	0.69***	0.46***
	(0.03)	(0.04)	(0.03)	(0.04)	(0.03)	(0.03)	(0.03)	(0.04)	(0.03)	(0.04)	(0.03)	(0.04)
Host ln(GDP)	0.64***	0.78***	0.57***	0.76***	0.55***	0.72***	0.57***	0.72***	0.55***	0.72***	0.56***	0.74***
	(0.06)	(0.08)	(0.04)	(0.09)	(0.04)	(0.08)	(0.04)	(0.07)	(0.04)	(0.09)	(0.04)	(0.08)
Source ln(GDPPC)	0.80***	0.90***	0.95***	1.19***	0.37***	1.15***	0.57***	0.93***	0.40***	1.17***	0.42***	1.13***
	(0.07)	(0.20)	(0.09)	(0.20)	(0.08)	(0.24)	(0.08)	(0.28)	(0.08)	(0.20)	(0.08)	(0.22)
Host ln(GDPPC)	0.07	-0.19	0.21*	-0.08	0.04	-0.11	-0.02	-0.12	0.17	0.06	0.18	-0.07
	(0.12)	(0.23)	(0.12)	(0.22)	(0.13)	(0.21)	(0.12)	(0.21)	(0.13)	(0.20)	(0.13)	(0.23)
Similarity index	-0.06	0.89	0.02	0.70	0.36**	0.68	0.04	0.56	0.42**	0.81	0.41**	0.65
	(0.20)	(0.61)	(0.19)	(0.55)	(0.18)	(0.54)	(0.20)	(0.61)	(0.18)	(0.54)	(0.18)	(0.53)
Ln(distance)	-1.10***	-0.47***	-0.94***	-0.39***	-1.02***	-0.41***	-1.08***	-0.42***	-0.95***	-0.39***	-0.98***	-0.40***
	(0.07)	(0.10)	(0.08)	(0.10)	(0.08)	(0.11)	(0.08)	(0.11)	(0.08)	(0.11)	(0.08)	(0.11)
Contiguity	0.57***	0.76***	0.45**	0.82***	0.46**	0.76**	0.47**	0.69**	0.55***	0.82***	0.45**	0.80***
	(0.20)	(0.29)	(0.21)	(0.29)	(0.19)	(0.30)	(0.19)	(0.30)	(0.20)	(0.30)	(0.19)	(0.30)
Common language	1.05***	0.91***	1.11***	0.92***	1.08***	0.91***	1.03***	0.87***	1.09***	0.98***	1.05***	0.93***
	(0.13)	(0.20)	(0.12)	(0.19)	(0.13)	(0.18)	(0.13)	(0.19)	(0.13)	(0.20)	(0.13)	(0.18)
Former colony	1.00***	0.80***	1.06***	0.87***	1.02***	0.87***	1.09***	0.91***	1.05***	0.85***	1.04***	0.86***
	(0.22)	(0.25)	(0.22)	(0.27)	(0.23)	(0.27)	(0.26)	(0.28)	(0.23)	(0.28)	(0.23)	(0.28)
Landlocked	-0.52**	-0.29	-0.66***	-0.34	-0.65***	-0.32	-0.56**	-0.31	-0.67***	-0.32	-0.67***	-0.24
	(0.24)	(0.26)	(0.23)	(0.29)	(0.24)	(0.26)	(0.24)	(0.30)	(0.24)	(0.27)	(0.25)	(0.27)
RTA	1.29***	0.91***	1.76***	1.06***	1.65***	1.14***	1.47***	1.17***	1.78***	1.15***	1.77***	1.14***
	(0.28)	(0.22)	(0.29)	(0.26)	(0.29)	(0.27)	(0.30)	(0.27)	(0.29)	(0.26)	(0.29)	(0.27)
GSP	0.89***	0.41**	1.32***	0.69***	1.06***	0.67***	1.04***	0.51***	1.07***	0.73***	1.09***	0.66***
	(0.12)	(0.19)	(0.12)	(0.19)	(0.12)	(0.18)	(0.11)	(0.17)	(0.12)	(0.17)	(0.13)	(0.18)
CU	0.69	2.51***	0.55	2.15***	0.60	2.21***	0.70	2.13***	0.54	2.22***	0.51	1.95***
	(0.68)	(0.70)	(0.64)	(0.59)	(0.61)	(0.61)	(0.57)	(0.62)	(0.64)	(0.64)	(0.62)	(0.56)
Source tax haven	1.46***	1.17***	1.33***	1.06***	1.14***	1.05***	1.09***	1.05***	1.26***	1.04***	1.25***	1.06***
	(0.11)	(0.16)	(0.12)	(0.16)	(0.11)	(0.17)	(0.12)	(0.17)	(0.11)	(0.17)	(0.11)	(0.18)
Constant	-26.67***	-27.46***	-28.52***	-29.89***	-20.44***	-28.53***	-22.38***	-26.90***	-22.82***	-30.33***	-23.16***	-29.10***
	(1.58)	(1.91)	(1.73)	(1.98)	(1.87)	(2.56)	(1.75)	(2.27)	(1.86)	(2.37)	(1.79)	(2.11)

Notes: ***, **, *denotes respectively significance at the 1, 5 and 10% level. Standard errors are in parentheses. All standard errors are heteroscedasticity-robust and clustered at the host country level. VA: Voice and Accountability. PS: Political Stability. GE: Government Effectiveness. RQ: Regulatory Quality. RL: Rule of Law. CC: Control of Corruption. RTA: Regional Trade Agreement. GSP: Generalised System of Preferences program. CU: strict Currency Union.

Table 7: Determinants of South-South FDI: public governance

	VA		**PS**		**GE**		**RQ**		**RL**		**CC**	
Determinant/Margin	*Extensive* (1)	*Intensive* (1)'	*Extensive* (2)	*Intensive* (2)'	*Extensive* (3)	*Intensive* (3)'	*Extensive* (4)	*Intensive* (4)'	*Extensive* (5)	*Intensive* (5)'	*Extensive* (6)	*Intensive* (6)'
Source VA	0.73***	0.64***										
	(0.14)	(0.22)										
Host VA	0.74***	0.66***										
	(0.06)	(0.11)										
Source PS			0.24*	0.44***								
			(0.14)	(0.16)								
Host PS			0.32***	0.04								
			(0.08)	(0.12)								
Source GE					0.53***	0.53**						
					(0.18)	(0.21)						
Host GE					0.97***	0.08						
					(0.07)	(0.13)						
Source RQ							0.83***	0.61***				
							(0.16)	(0.22)				
Host RQ							0.96***	0.46**				
							(0.09)	(0.19)				
Source RL									0.20	0.14		
									(0.16)	(0.20)		
Host RL									0.96***	0.11		
									(0.08)	(0.13)		
Source CC											0.20	0.50**
											(0.17)	(0.24)
Host CC											0.83***	0.08
											(0.06)	(0.11)
Observations	24569	24569	24569	24569	24569	24569	24569	24569	24569	24569	24569	24569
Log pseudolikelihood	-8857		-9070		-8978		-8916		-9022		-9004	

Notes: ***, **, *denotes respectively significance at the 1, 5 and 10% level. Standard errors are in parentheses. All standard errors are heteroscedasticity-robust and clustered at the host country level. VA: Voice and Accountability. PS: Political Stability. GE: Government Effectiveness. RQ: Regulatory Quality. RL: Rule of Law. CC: Control of Corruption.

List of Figures

Figure 1: Experience of risk and expected benefit from a risky investment

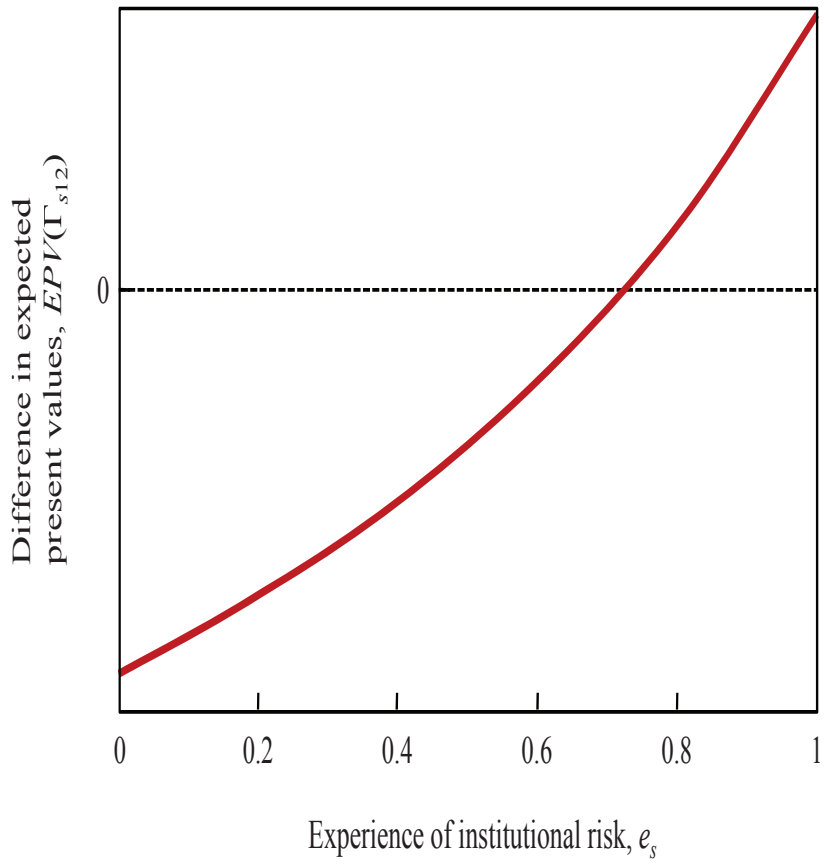


Figure 2: Relative host-country risk and FDI-location choice

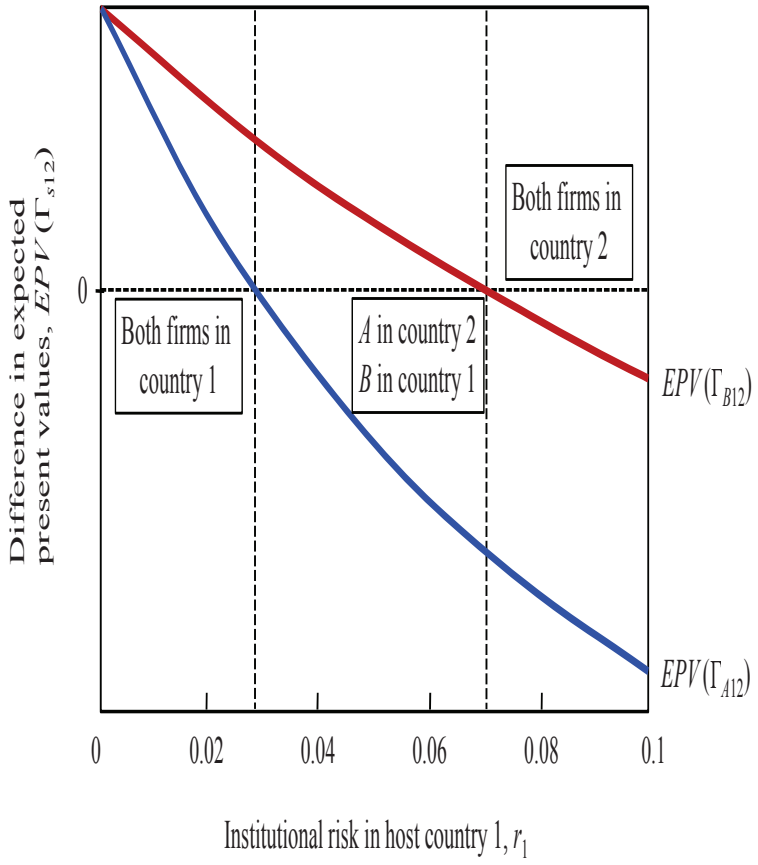
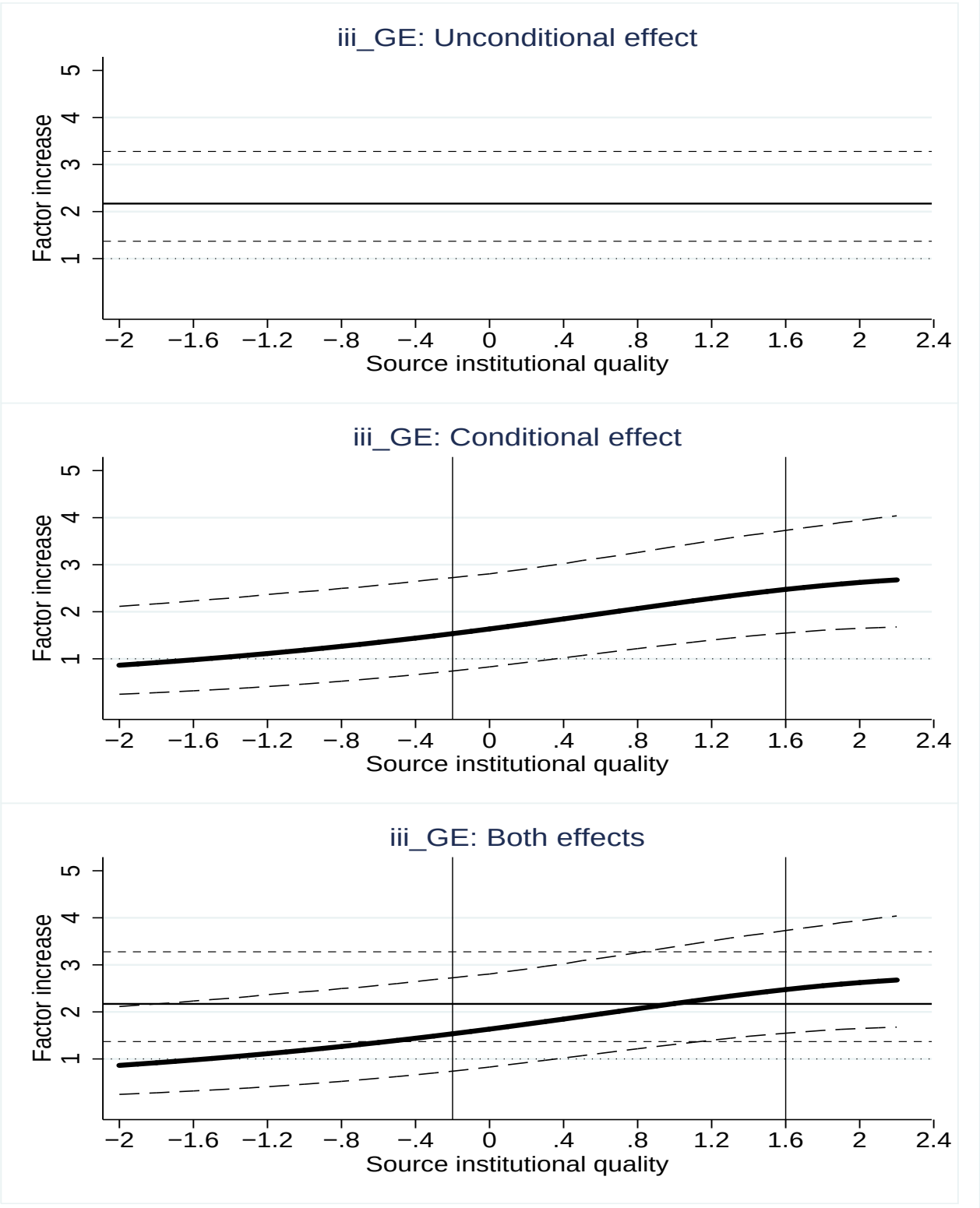
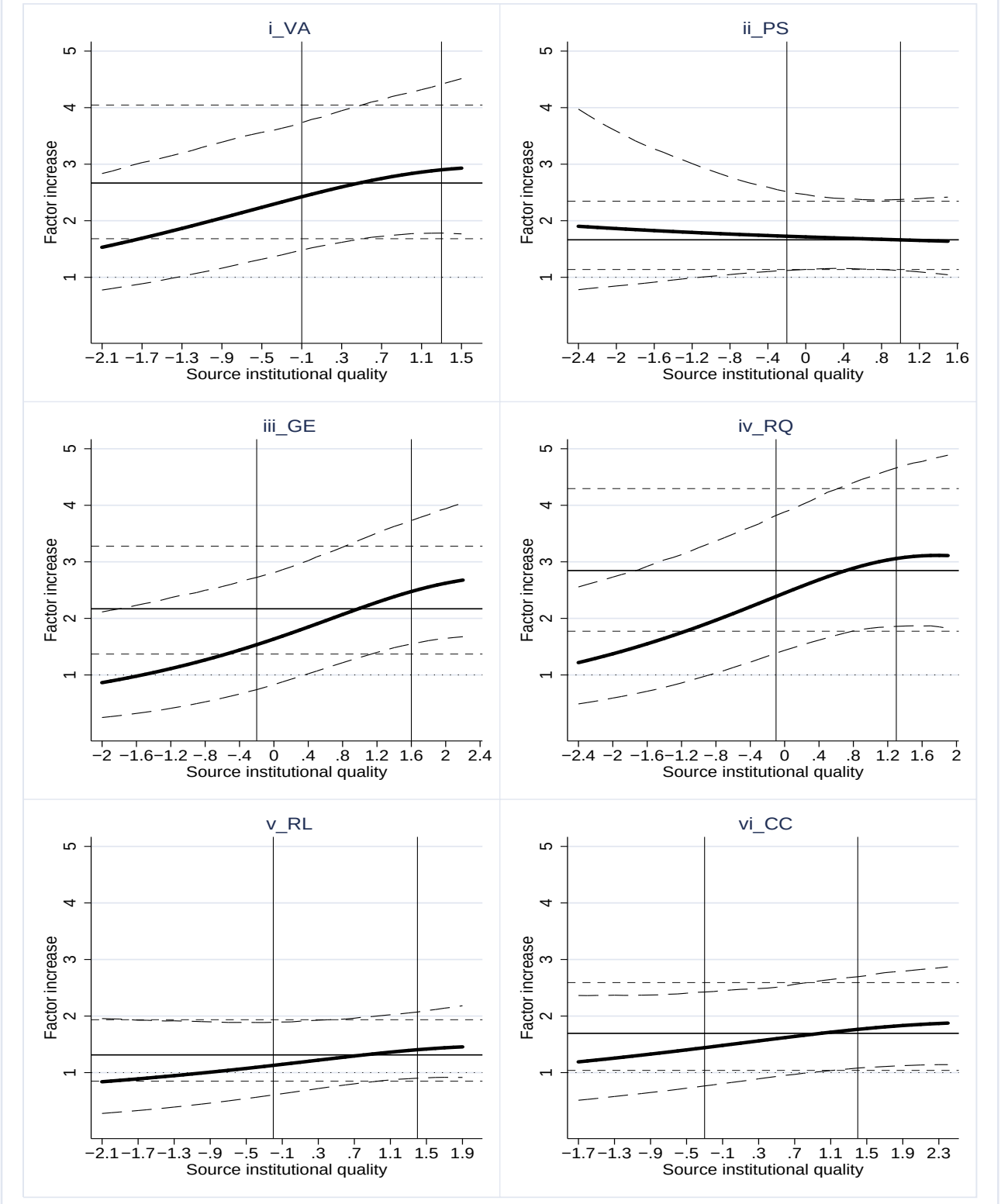


Figure 3: Graphical interpretation of results



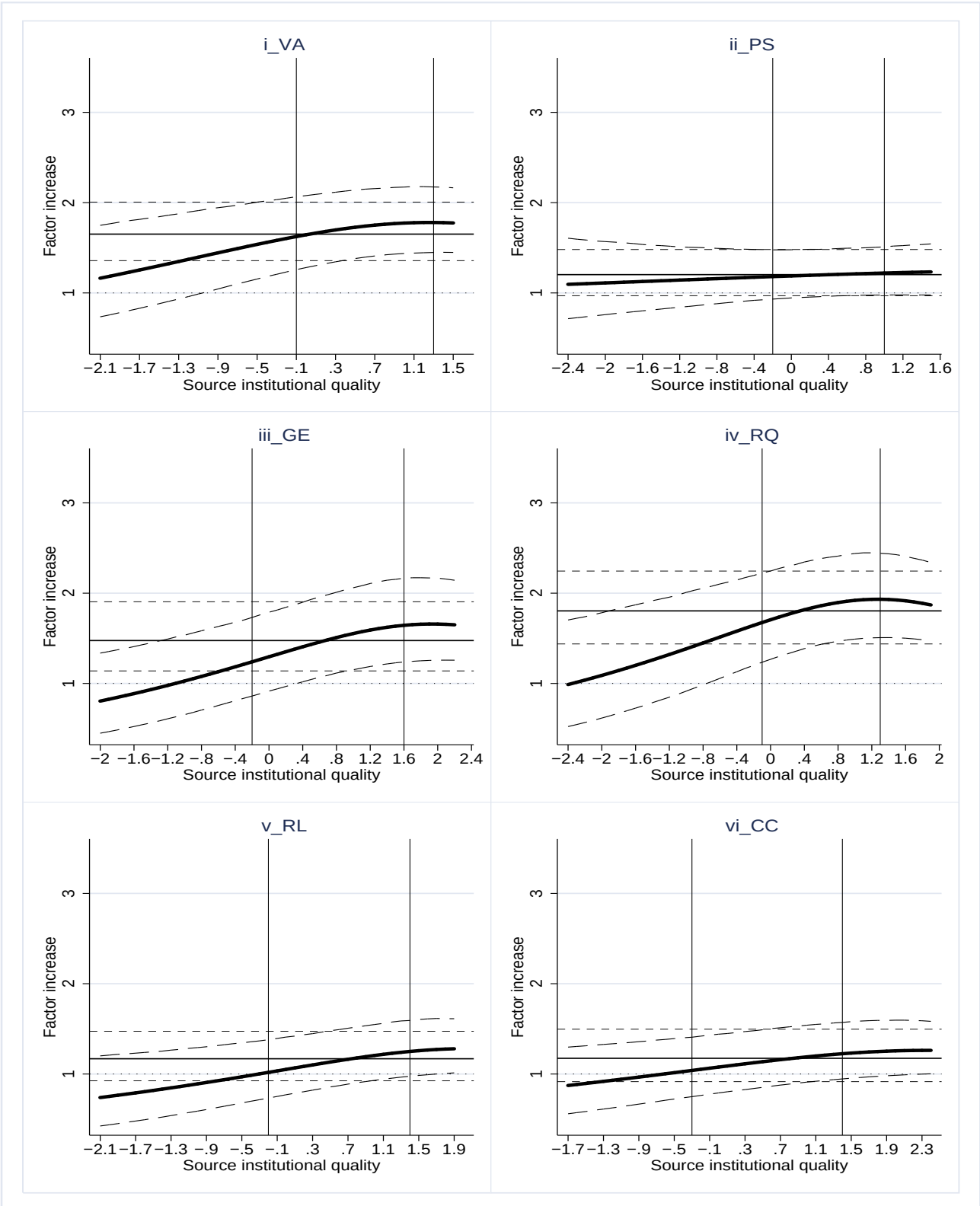
Notes: A higher value of source country's institutional quality is interpreted as lower experience of dealing with poor public governance. Dashed lines correspond to the upper and lower bounds of a 95% confidence interval. The value of the measure of past institutional quality for a median FDI-active source South country is indicated by the first vertical line, while the second indicates the value of the measure of past institutional quality for a median FDI-active source North country. The FDI active designation means that firms in a given source country have invested at least once abroad. VA: Voice and Accountability. PS: Political Stability. GE: Government Effectiveness. RQ: Regulatory Quality. RL: Rule of Law. CC: Control of Corruption.

Figure 4: The moderating influence of experience of poor institutional quality: overall effect



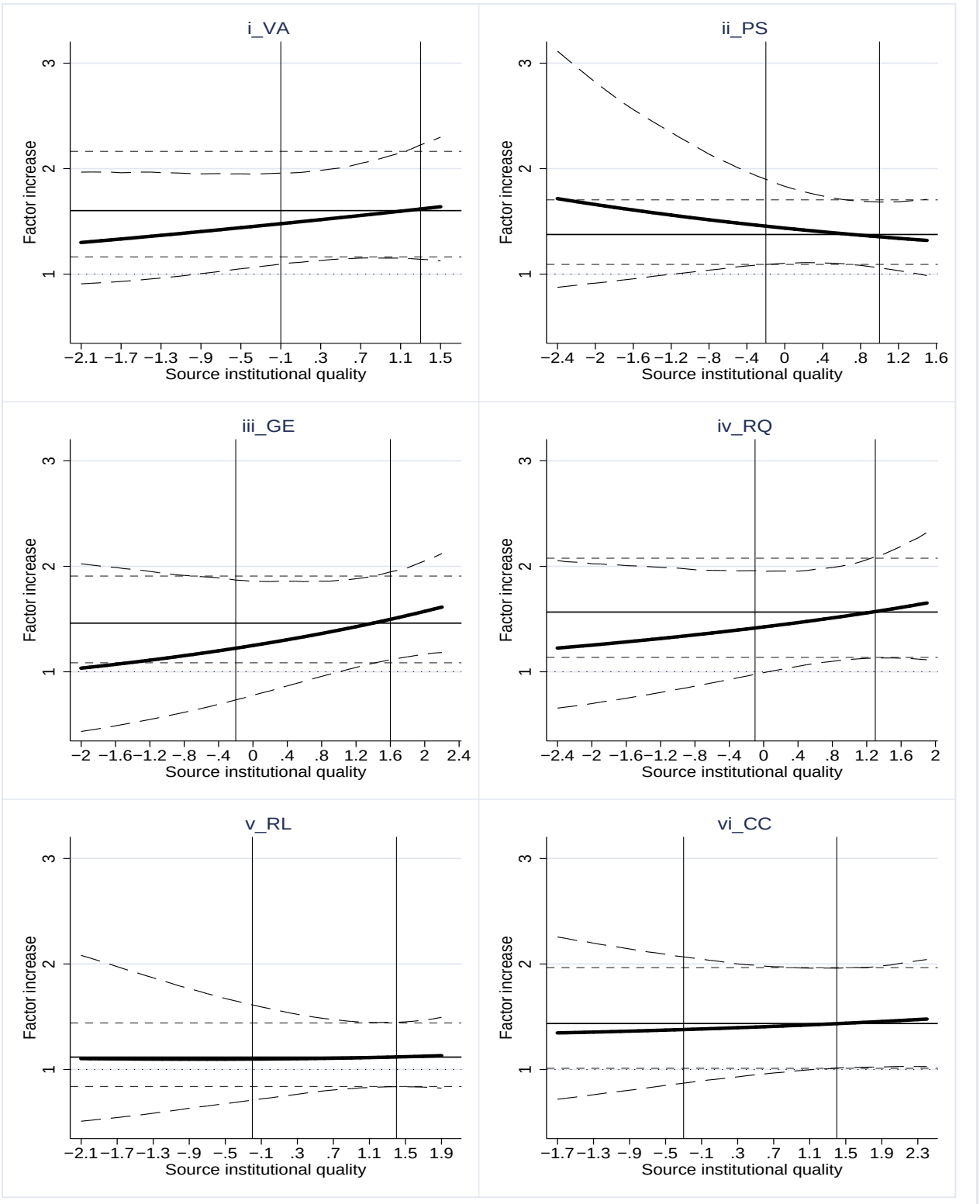
Notes: See notes of figure 3.

Figure 5: The moderating influence of experience of poor institutional quality: extensive margin



Notes: See notes of figure 3.

Figure 6: The moderating influence of experience of poor institutional quality: intensive margin



Notes: See notes of figure 3.